

REMARKS

Claims 1-52, 56-72, and 76-81 are now pending in this application. Claim 76 has been amended and new claim 81 has been added, which depends from claim 1 and contains limitations similar to claim 16. No new matter has been added.

Reconsideration of this application is requested.

35 U.S.C. § 101 Rejection

Reconsideration and withdrawal of the rejection of claim 76 under 35 U.S.C. § 101 is requested. The Office action takes the position that claim 76 is not directed to any of the statutory classes of patentable subject matter defined by § 101. To the contrary, claim 76 is directed to a computer readable medium containing a computer readable data structure, which constitutes a legitimate article of manufacture under the patent laws. The data structure contained by the claimed computer readable medium includes computer readable data that enables automation of a sequence of process flow operations, which meets the “useful” provision of the patent laws. The computer readable medium as set forth in claim 76 is not merely a collection of data as asserted in the Office action, but to the contrary sets forth specific recipe and unit operation data, and specific recipe and unit operation live data including operation status and start and finish time information, all of which relates to the recited automation of process flow operations. As such, claim 76 is directed to a statutory article of manufacture under 35 U.S.C. § 101. Withdrawal of this ground of rejection is requested.

35 U.S.C. § 102 Rejection

The rejection of claims 16, 17, 20-22, 24, 25, 28, 31, 32, 34, 35, 39, 41-49, 52, 56, 59, 61, 62, 65, 66, 68, 71, 77, 78 and 80 as being anticipated by U.S. Patent No. 5,499,188 to Kline Jr. et al. (“Kline”) is respectfully traversed.

One aspect of the present invention as set forth in independent claims 16, 24, 34, 56, 62, 68 and 77 relates to execution of a plurality of unit operations included in a recipe, wherein each unit operation is classified as either a sequential operation or a parallel operation, wherein a group of parallel classified operations is executed in

parallel, and execution of additional sequential classified operations is postponed until the completion of execution of the group of parallel operations. This is disclosed in Fig. 7 at steps 712-720 and described at paragraphs 0050 - 0053 of the specification.

Contrary to the claimed invention, Kline is directed to the building of a recipe for the production of a product. Kline discloses the building of a formula based on a product to be produced, where the formula provided information relating to the quantities of raw materials used and the manner of combining the raw materials, where the formula is independent of equipment. The recipe is then built based on the formula and a selected production line (i.e. equipment), with the recipe being a set of procedures unique to the selected production line and executed in a specified sequence.

Thus, Kline fails to disclose the classification of a unit operation subsequent to a unit operation being executed, as either sequential or parallel, executing parallel unit operations in parallel, and postponing execution of further sequential operations until completion of execution of parallel operations. Kline at columns 10, 11 and 12 cited in the Office action as allegedly anticipating the claim limitations, in fact discloses formula and recipe build operations, not execution of unit process flow operations as contained in a recipe as set forth in claims 16, 24, 34, 56, 62, 68 and 77 and the claims dependent thereon. For this reason alone, Kline fails to anticipate the claimed invention and the rejection should be withdrawn on this basis.

Additionally, however, Kline nowhere discloses the classification of unit operations as parallel or sequential as alleged in the Office action. In particular, Kline discloses at columns 11 and 12 that the logic employed in the recipe builder views the recipe as a sequential series of operations even though the final result may be a set of recipes which can be executed in parallel. See col. 11, lines 52-55. The result of determination that a "start" step should be made conditional is not parallel execution as alleged in the Office action, but instead requires a corresponding INITIATE step to be added to a vessel to which the start step dumps. See col. 12, lines 15-19. No parallel execution of any steps with postponement of execution of a sequential step until completion of the parallel steps is disclosed. Instead, all of the steps are sorted by the vessel in which they are located. Col. 12, lines 31-34.

Another aspect of the invention as set forth in independent claims 41 and 52 relates to a controller having a processing component and an input/output component, with the processing component executing a process control program and a hardware control program, and the input/output component communicating with a workstation and process hardware. This is shown in Fig. 1 of the present application. Figs. 1 - 4 of Kline relate to a plant control network and process controllers. Kline fails to disclose communication between a controller and workstations and process hardware through an input/output component as claimed. Instead, controllers 30 and 40 as shown in Fig. 2 communicate with field devices through input/output modules 21-A – 21-D and communicate with a workstation 122 through a separate universal control network 14 and network interface module 602 as shown in Fig. 1. Kline further fails to disclose a hardware control program monitoring and controlling process hardware based on execution of unit operations of a recipe by a separate process control program as claimed.

According to another aspect of the invention as set forth in claim 78, a user is able to edit a recipe by reviewing lists of available and selected unit operations and resources, by being able to add or delete at least one available unit operation to or from the recipe, and edit the resources for at least one of the selected unit operations. Kline discloses no such user addition or deletion or editing of resources from a preexisting recipe as alleged by the Office action. Cols. 9-10 and 11-13 referenced and cited by the Office action relate to the building of formulas and recipes and do not relate at all to user editing of a recipe as claimed. In view of the foregoing, withdrawal of the anticipation grounds of rejection is respectfully requested.

35 U.S.C. § 103 Rejections

The rejection of claims 1-4, 6, 7, 11-14, 27 and 38 as being unpatentable over Kline in view of Safir et al., U.S. Patent No. 6,994,827 ("Safir"), also is traversed. Claim 1 is directed to apparatus for specifically automating the production of a radiopharmaceutical, comprising a workstation and controller similar to the controller as set forth in claim 41. Kline fails to disclose such controller as explained above. Safir

discloses parallel reactors for use in a material science research program, and fails to provide any disclosure missing from Kline that would result in the invention as set forth in claim 1. Contrary to the assertion of the Office action, Safir is not concerned with the production of radiopharmaceuticals and fails to anywhere disclose or suggest use of the parallel reactors for such production. However, even if Safir did disclose such production, it is not understood how such disclosure would cure the fundamental deficiencies of Kline with respect to the limitations of claim 1 as discussed above. Withdrawal of this ground of rejection is requested.

Claims 5, 8 and 15 all depend from claim 1 and are not rendered unpatentable by the proposed addition of Funk et al. (U.S. Pub. No. 2005/0187649), relating to control of a semiconductor manufacturing process, to Kline and Safir. Funk fails to provide the shortcomings of Kline and Safir, and in addition fails to disclose the specific limitations of claims 5, 8 and 15 as alleged in the Office action. The cited paragraphs of Funk disclose a GUI, but fail to disclose or suggest the specific limitations of claims 5, 8 or 15. Withdrawal of this ground of rejection is requested.


The rejection of claims 9 and 10 as being unpatentable over the proposed combination of Kline, Safir and Christian et al., U.S. Patent No. 6,684,122, also is traversed. Christian relates to control of a multi-chamber process tool in a semiconductor fabrication process. Christian fails to cure the deficiencies of Kline and Safir as explained above. Christian does not even relate to use of a recipe for automation of process flow operations. As such, this ground of rejection is improper and should be withdrawn.

The rejections of claims 18, 23, 26, 29, 33, 36, 40, 50, 51, 58, 60, 64, 67, 70, 72, 76 and 79 as being unpatentable over Kline in view of Funk, and claims 19, 30, 37, 57, 63 and 69 as being unpatentable over Kline in view of Christian, are respectfully traversed for the same reasons as set forth in detail above. No combination of Kline with Funk and/or Christian would result in the invention as specifically set forth in the independent claims and therefore could not result in the invention as set forth in the dependent claims above. Additionally, the limitations set forth in the dependent claims are neither disclosed nor suggested by any of the prior art references relied upon.

Conclusion

Favorable reconsideration of this application and the issuance of a Notice of Allowance is earnestly solicited in view of the above amendments and remarks.

Please charge any fee or credit any overpayment pursuant to 37 CFR 1.16 or 1.17 to Novak Druce Deposit Account No. 14-1437.

RESPECTFULLY SUBMITTED,					
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